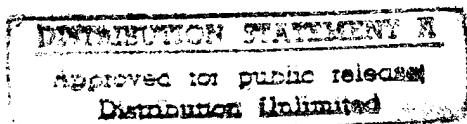


NAVAL WAR COLLEGE  
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FIRE AND THUNDER: Shaping the Battlespace  
with Operational Fires



by

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A paper submitted to the faculty of the Naval War College in partial satisfaction of the requirements of the Joint Military Operations Department.

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### **ABSTRACT**

The American way of war has evolved over the last twenty years from the more traditional attrition style of warfare to a maneuver-oriented style which seeks to apply decisive force to achieve maximum results through the most efficient expenditure of resources. This new style of warfare emphasizes joint operations and the joint application of firepower to achieve decisive results at every level. This paper argues that although the armed services of the United States have the tactical and operational tools to dominate any battlespace, they lack a truly joint perspective of the joint application of firepower at the operational level of war. The result is an inability to realize the full potential of using fires to shape the battlespace in a regional, conventional conflict.

The success of Operation Desert Storm masked the weakness of U.S. forces in joint operations. The varying service perspectives surfaced during the "preparation" or "shaping" of the battlefield phase, which makes Desert Storm an excellent case study in the joint use of operational fires. Joint doctrine turned out to be a fragile agreement on how to fight, which could not withstand the pressures of war.

Unfortunately, joint doctrine retains many of the same separate service perspectives, which means that the next war will be fought much like the last, with the services fighting separate wars from their own perspectives. The paper concludes with some recommendations toward developing a truly joint perspective.

From the days of Ulysses Grant until recent years, American military commanders sought to overwhelm their enemies using physical mass and lavish firepower.<sup>1</sup> For the last twenty years American military thinkers have struggled to change the attritional aspects of the American way of war, since our greatest threat during that time, the Soviet Union, had more mass and more firepower than did we. The result has been a more maneuver oriented approach to war, now grounded in doctrine, which seeks to apply the operational art of war and capitalize on American technological strengths to defeat any adversary at least cost in lives and resources.

The National Military Strategy states that "decisive force" remains a guiding principle for our armed forces engaged in a conventional, regional conflict.<sup>2</sup> Declining budgets and smaller forces, however, demand that the American military fight more and more efficiently to achieve such decisive force. Joint operations, in general, and the joint application of firepower, in particular, have become ever increasingly important capabilities in the pursuit of operational objectives. This paper will argue that although the armed services of the United States have the tactical and operational tools to dominate any battlespace, they lack a truly joint perspective on applying firepower at the operational level of war. The result is an inability of joint forces to realize the

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<sup>1</sup>See Russell Weigley's The American Way of War (Bloomington, 1973).

<sup>2</sup>National Military Strategy, 1995, p. 13.

full potential of operational fires in conventional conflicts. This weakness is revealed in joint and service doctrine, in which a fragile, surface agreement rests on varying service perspectives. It is also revealed in how fires were used at the operational level in Operation Desert Storm. Despite its success, Desert Storm illustrates the fragility of our doctrine, which could not withstand the pressures of war. Doctrinal weaknesses and the differing and often competing service perspectives offer some implications for the future that should give us pause. These implications form the backdrop for some recommendations that aim to open the way toward a more truly joint perspective on operational fires.

#### **OPERATIONAL FIRES: A MATTER OF PERSPECTIVE?**

The term "operational fires" does not appear in the keystone document for joint warfighting, Joint Pub 3-0. In fact, there exists no single term in the joint lexicon which captures the idea of applying firepower at the operational level to attain operational ends. "Deep Fire Support" is a candidate, and is defined in Joint Pub 1-02 as

Fire directed on objectives not in the immediate vicinity of our forces, for neutralizing and destroying enemy reserves and weapons, and interfering with enemy command, supply, communications, and observations.<sup>3</sup>

This term is inadequate because "fire support" implies that firepower in and of itself cannot have operational effects, since

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<sup>3</sup>Joint Pub 1-02, Department of Defense Dictionary of Military and Associated Terms, 23 March 1994, p. 108.

fires would only "support" some other functional capability. The definition is inadequate because it is too general -- it could apply at any level, tactical, operational, or strategic. Further, the term begs the question, "what do we mean by deep?". Before we can jointly apply, or even begin to agree on the meaning and concept of operational fires, we must first explore the varying service perspectives.

### **The Air Force Perspective**

The very term "firepower" is problematic for the Air Force, whose perspective is rooted in the same theoretical arguments behind the Defense Reorganization Act of 1947 that resulted in the separation of the Air Force from the Army. The Air Force does not apply *fire* power, it applies *air* power, and more specifically today, *aerospace* power. That there exists a separate and distinct Air Force perspective is expressly stated in Air Force doctrine. Air Force Manual 1-1 has a chapter devoted to the operational art of employing aerospace forces. In a section entitled "Air-mindedness" the author states that because of the short history of aerial warfare, "...two dimensional, surface concepts dominate military thinking."<sup>4</sup> He emphasizes that all aspects of warfare need to be re-examined from the aerial or three-dimensional perspective, and he stresses the importance of an aerial mindset, or "air-mindedness." The author then presents a reassessment of the principles of war from the aerial perspective. On the principle of

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<sup>4</sup>Air Force Manual 1-1, Basic Aerospace Doctrine, Volume 1, March 1992, p. 15.

"objective", he states

Airmen are not constrained to achieving tactical objectives as a prerequisite to obtaining strategic objectives...Aerospace forces can pursue tactical, operational, or strategic objectives, or all three at the same time.<sup>5</sup>

Aerospace forces, he explains, are not inhibited by terrain and distance compared to land and sea forces. They can maneuver with great speed in three dimensions and achieve mass much faster than surface forces. Since the environment of aerial power is fluid, featureless, and boundless, airpower is inherently more flexible and versatile, thus, by implication, possibly more decisive. The broader perspective and the greater range and speed of aerospace power enables the Air Force to concentrate quickly above any point on the earth's surface and apply force against any facet of enemy power. Aerospace power makes all other friendly operations possible and commensurate enemy actions impossible, hence it is a most precious commodity that must be centrally controlled and "conserved by caring and competent airmen."<sup>6</sup>

Not only is the term "operational fires" absent from Air Force doctrine, even the terms "fires" and "fire support" are absent because they generalize and trivialize what is a mere tactical effect at the lower end of the spectrum of Air Force capabilities. Close air support of ground forces, a specific Air Force mission, is discussed as the "least efficient use of aerospace forces,

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<sup>5</sup>Ibid., p. 16.

<sup>6</sup>Ibid., p. 13.

because it "...rarely creates campaign-level effects."<sup>7</sup>

From these views, we can deduce that the Air Force perspective sees a decisive capability for firepower at any level, tactical, operational, or strategic. Since the strategic level is obviously the most decisive, maximum effort should go toward attacking strategically important targets. And since firepower can be applied decisively at all levels simultaneously, it is not important to delineate where the various levels overlap. Hence, "how deep is deep?" has little significance. Boundaries and lines are important, but only as command and control tools to separate forces and prevent fratricide. Given that joint doctrine recognizes a distinct operational level of war, however, Air Force roles and missions doctrine specifies interdiction as the operational level mission of the Air Force. In Joint Pub 3-03, Doctrine for Joint Interdiction Operations, for which the Air Force is the lead agent, the author comes from the aerial perspective to equate the operational application of firepower with all forms of interdiction, which are broadly defined as "...actions to divert, disrupt, delay, or destroy the enemy's surface military potential before it can be used effectively against friendly forces."<sup>8</sup> Since aerospace forces can only mass above the enemy, the Air Force perspective is inherently attritional. Any operational level effect is dependent upon the cumulative results of successful attacks on

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<sup>7</sup>Ibid., p. 13.

<sup>8</sup>Joint Pub 3-03, Doctrine for Joint Interdiction Operations, 28 November 1994, p. I-1.



multiple targets.

### The Army Perspective

The U.S. Army experienced an intellectual revival of the operational art and maneuver warfare in the 1980's. Since that time the Army construct of the operational level of war has evolved from a focus on distinct close, deep, and rear "battles" to one operational battle with simultaneous and overlapping close, deep, and rear "operations".<sup>9</sup> There is no mistaking the fundamental bias toward the *battlefield* as opposed to *battlespace* in the Army perspective:

On the modern, fluid, fast-moving battlefield, the Land Commander must control deep operations to synchronize his scheme of maneuver over extended surfaces to achieve victory where wars are won -- on land.<sup>10</sup>

Ultimately, in the Army's view, no amount of fires will attain operational and strategic objectives. It takes a ground maneuver force using the tactical and operational effects of fires to defeat an enemy. The purpose of all fires, then, is to dictate the terms of close or tactical operations, through which a ground maneuver force will compel a decision. The Army specifically defines *operational fires* as one of six systems the operational level commander uses to structure his fight and "shape" his

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<sup>9</sup>Department of the Army, Roles and Missions Directorate, "Deep Operations - Battle Dominance," Weekly Summary, 31 October 1994, p. 36.

<sup>10</sup>Ibid.

battlefield.<sup>11</sup> It is not a question of the number of dimensions in which we fight, but rather, which is the dimension of decision. The Army takes the strong position that the dimension of decision is surface, and specifically, the land. All services, all branches of service, all operating systems, and all weapons ultimately support a decision on land. The Army specifically distinguishes "fire support" from "operational fires", the former generally supporting a tactical maneuver in an engagement or battle, and the latter constituting a discreet application of firepower that can have effects on its own. At the operational level, fires shape the sequence and character of engagements to set the terms for close operations.

Operational fires are routinely thought of as spatially deep in relation to ground forces. How deep is not necessarily a question of distance, nor is it answered objectively or by formula. Rather, the meaning of "deep" is subjective in relation to the enemy's operational center of gravity. The location of decisive points, that is, points that expose, lead to, or constitute the center of gravity itself, dictate how deep. For example, on 25 July 1944 in Operation Cobra of the Normandy campaign, Army Air Forces and artillery laid a carpet of firepower across the German front line along the St. Lo-Perriers Road in close proximity to friendly forces. The fires were not spatially deep (less than 3000 meters from the front line of troops), but they were *operational*,

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<sup>11</sup>Department of the Army, FM 100-7, Decisive Force: The Army in Theater Operations, 31 May 1995, p. 5-0.

because they had an operational level purpose -- to open the way for the breakout of the Third U.S. Army into operational depths of the German rear.<sup>12</sup> During the same campaign, allied air forces protected the landing forces by interdicting roads, bridges, and the movement of German operational reserves between the Seine, Orne, and Vire Rivers. These fires were between 15 and 65 miles from the ground forces, and constitute a classic Army example of deep operations using battlefield air interdiction.<sup>13</sup>

In contrast to the Air Force, the Army views the effects of fires as neither attritional nor cumulative, but rather that they are facilitative of purpose. Thus, in the interest of unity of effort, the Army believes that all fires on the operational battlefield need to be synchronized and controlled by the ground commander.<sup>14</sup>

### **The Naval Perspective**

The U.S. Marine Corps accompanied the Army in the 1980's revival of the operational art and maneuver warfare.

Because we have long enjoyed vast numerical and technological superiority, the United States has traditionally waged war by attrition. However, Marine Corps doctrine today is based on warfare by maneuver...<sup>15</sup>

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<sup>12</sup>LTC Sterling R. Richardson, "The Normandy Campaign: Firepower at the Operational Level." Fort Leavenworth, KS: 6 May 1987, pp. 20-22.

<sup>13</sup>Vincent Esposito, The West Point Atlas of American Wars, Volume II, Section II (New York, 1959), p. 53.

<sup>14</sup>Ibid., p. 5-3.

<sup>15</sup>Department of the Navy, Headquarters, U.S. Marine Corps, FMFM 1, Warfighting, 1989, p. 30.

Marines, like the Army, see two "styles" of war, *attrition*, based on firepower, and *maneuver*, based on movement. Fires, including those provided by Marine and naval aviation, are a means to shape the battle in time and space to the advantage of the surface forces. Organized to fight primarily on the ground, Marines have a perspective more like the Army than their senior naval service.

The U.S. Navy's perspective of the operational level and operational fires is much larger than the Marines or the Army, but smaller and more well-defined than the Air Force. The Navy agrees with the Air Force that modern battlespace is multidimensional and that dominance in every dimension, if only for limited periods of time, is crucial to achieving operational ends. The naval contribution to a joint campaign or major operation is the ability to create "zones of superiority" that are three dimensional and hundreds of kilometers in radius. Further, these zones can shift and move rapidly within or without a theater or area of operations as the situation requires.<sup>16</sup> These zones extend across and above open ocean and littoral areas to the range of the weapons available within the carrier battle task force. What is within the zone the Navy tends to view as tactical, and what is outside the zone is operational. Naval forces can operate independently if the theater commander sees the need, and multiple task forces can lay zones of superiority over land forces and interdict reinforcement of enemy forces with another zone of superiority. For example, when allied

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<sup>16</sup>Department of the Navy, Office of the Chief of Naval Operations, Naval Doctrine Publication 1, Naval Warfare, 28 March 1994, p. 63.

forces prepared to invade the Marianas Islands in June of 1944, naval forces, including submarines, interdicted Japanese logistics and prevented reinforcements, while naval air forces bombed airfields throughout the islands. These actions isolated the Japanese defenders, took away their air support, and shaped the coming battles on Saipan, Tinian, and Guam.<sup>17</sup>

In Operation Husky, the Sicily Campaign of World War II, Army Air Forces were used to attack German and Italian air forces and bases on Sicily and on the Italian mainland. Shipping terminal facilities and rail yards on both sides of the Straits of Messina were attacked. While these attacks failed to prevent the escape of substantial Axis forces from Sicily, they succeeded in isolating the defenders from the air support they so desperately needed, and prevented reinforcements and logistical support from arriving to help them. These fires, both inside and outside the area of operations, helped shape the battlefield on Sicily.<sup>18</sup>

The Navy view of operational fires is similar to the Army with respect to purpose -- they are fires to shape the course of tactical operations. On the other hand, the Navy's purpose can be either supportive or independent of the ground commander in the area of a campaign or major operation. Tactical operations at sea or in littoral areas either within or outside of the land component

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<sup>17</sup>Samuel Eliot Morison, The Two Ocean War (Boston, 1963), pp. 322-327.

<sup>18</sup>Department of Military Art and Engineering, U.S. Military Academy. Operations in Sicily and Italy (West Point, 1947), PP. 7-8.

commander's area of operations can have operational significance for the land commander's fight. Thus, the meaning of "deep" to the Navy tends to be more spatial than the Air Force, but generally larger than what the Army considers operational. Further, the Navy's concept of "zone of superiority" makes an important contribution to the debate, because it can be viewed as a discreet zone of firepower that can be maneuvered within and around the battlespace for operational purposes.

#### **OPERATIONAL FIRES IN DESERT STORM: SYMPHONY OR CACOPHONY?**

If we leap forward to 1991, we see in Operation Desert Storm a case study on the use of operational fires from varying perspectives. In the introductory Compendium of Joint publications, General Norman Schwarzkopf is quoted as the seminal authority on joint operations:

I built trust among my components because I trusted them...If you want true jointness, a CINC should not dabble in the details of component business.<sup>19</sup>

His confidence on the inter-component trust and true jointness found in Operation Desert Storm can only be the product of the euphoria of victory -- it was not reality. One has only to glance at during-operations situation reports and scan post operations reports and writings to see great debate, frustration, and the erosion of trust between components on the phase of the operation "preparation" or "shaping" of the battlefield. The primary culprit was the quick abandonment of existing doctrine on the joint

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<sup>19</sup>Joint Pub 1-01.1, Compendium of Joint Publications, 25 April, 1995, Appendix B, introductory page.

application of firepower.

**Doctrinal Casualty Number One: Battlefield Air Interdiction**

When the air "campaign" began on 17 January 1991, the priority was jointly understood and agreed upon to be counterair and strategic targets around Baghdad. From the Air Force perspective, however, as General Charles A. Horner still maintains, preparation of the battlefield "began in Baghdad."<sup>20</sup> As the Joint Force Air Component Commander (JFACC), General Horner decided early on that the management of the huge air armada, which would be conducting operations at all three levels of war simultaneously, required simplification of planning and employment procedures. One simplifying measure was the elimination of battlefield air interdiction (BAI) as a separate category of interdiction targeting.<sup>21</sup>

Both the Army and the Marine Corps had been steeped in AirLand Battle doctrine since the revival of maneuver warfare produced it in the late 1970's. BAI was an integral part of AirLand battle, since it was seen as the only way a ground commander could affect the enemy outside the range of ground systems to set up future operations.<sup>22</sup> The elimination of BAI was a rude shock to ground commanders, and highlights what Robert Scales, Director of the Desert Storm Project for the Army, called a "clash of cultures"

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<sup>20</sup>General Charles A. Horner, "The Air Campaign," Military Review, September, 1991, p. 20.

<sup>21</sup>Robert Scales, Certain Victory (Washington, 1993), p. 176.

<sup>22</sup>FM 100-5, Operations, June 1993, p. V.

between the ground and air forces.<sup>23</sup> The entire Air Force perspective rests on tenets of centralized control and decentralized execution of air operations, emphasizing maximum versatility and flexibility in the employment of air power. Thus the Air Force could easily, almost without thinking, change tactics, techniques, and procedures that had been established in joint doctrine. Even though BAI was a mission acknowledged in Air Force doctrine and taught in Air Force schools its elimination was conceptually easy for the Air Force, and caused no great changes to or concerns about the tactics, techniques, and procedures of air ground operations.<sup>24</sup> For the ground forces, however, BAI was rooted deeply into ground doctrine and permeated tactics, techniques and procedures as well as operational thinking. BAI was seen as crucial to a maneuver commander's need to shape the battlefield. Its purpose was not merely to attrit enemy forces, a process which, from the ground perspective, could never be

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<sup>23</sup>Scales, p. 176.

<sup>24</sup>That there was official joint "doctrine" for air-ground operations is open to question. The Air Force has no counterpart of the Army's Training and Doctrine Command (TRADOC), hence the Air Staff in Washington is the ultimate authority for Air Force doctrine. The Air Force had authorized the Tactical Air Command, Langley AFB, VA to work with TRADOC to develop joint procedures for air-ground operations, but had never officially sanctioned any of the joint tactics, techniques, and procedures manuals developed by TAC-TRADOC, or even AirLand Battle doctrine as official doctrine of the Air Force. Even so, Battlefield Air Interdiction (BAI) was part of the curriculum at the Air Force's Air Ground Operations School, Hurlburt Field, Florida (See for example, the syllabus for the Battle Staff Course, AGOS, 1988, p. 2B-3. BAI was taught in pilot training until 1991. See also Harold Winton, "Partnership and Tension: The Army and Air Force Between Vietnam and Desert Shield," Parameters, Volume XXVI, No. 1, Spring 1996, pp. 111-114.



decisive, but to take away the enemy's freedom of maneuver, to isolate him, and to demoralize him in order to set him up for a decisive ground maneuver. To the ground forces, the presence of BAI was a matter of trust -- it was established in joint doctrine that ground commanders would have discreet, dedicated air power to shape the battlefield according to their perspective of it.<sup>25</sup> The elimination of BAI was thus a hard and bitter pill, but there was little time to challenge Horner's decision in January 1991.

#### Doctrinal Casualty Number Two: Joint Targeting

With the elimination of BAI, the ground forces focused all the more on the joint targeting process as the only hope for using air power to shape their battlefield. General Scharzkopf himself entered the fray at this point, and used his command authority to overrule Air Force plans for a sequential air "campaign". He ordered the JFACC to target the Republican Guard forces, the identified operational center of gravity, and to strike them "... the very first day...and every day after that" until they were reduced to 50% strength.<sup>26</sup> Beyond this, Schwarzkopf did not "...dabble in the details of component business." Unfortunately, his guidance of 50%, which, he admits, he just pulled out of the air, sounded like gospel to the Air Force -- it was something they took to immediately because it fit their perspective of preparation of the battlefield. Plainly, however, such guidance is attrition

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<sup>25</sup>Scales, pp. 177-178.

<sup>26</sup>General Norman Schwarzkopf, It Doesn't Take a Hero (New York, 1993), p. 320.

warfare at its best, and what the Air Force did not hear was Schwarzkopf's purpose for the pounding, to bring the enemy down in strength and set him up for a ground maneuver.<sup>27</sup>

As January turned to February, the Air Force bomb damage assessments (BDA) noted steady progress toward the 50% goal. In late February the issue came to a head when a decision on when to launch a ground attack hinged on reaching the 50% goal, while ground commanders wanted to dedicate at least the last seven to eight days to shaping the battlefield from their perspective. Air Force BDA listed the Tawakalna Division at 48%, while the CENTCOM J-2 and Army intelligence analysts assessed it at 74%.<sup>28</sup> The Army, by this time, no longer trusted Air Force BDA, yet the Air Force JFACC maintained Air Force priorities for targeting at operational depths in front of the ground forces.

The targeting process came to be viewed by surface commanders as "non-joint" and skewed toward the Air Force perspective. BG Stephen A. Arnold, G-3 of Third Army (ARCENT), noted in official reports of 18 and 19 February that air support issues plagued final preparations for ground operations and raised doubts about the state of the enemy:

Our inability to control the air campaign continues, resulting in a great deal of uncertainty in shaping the battlefield.<sup>29</sup>

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<sup>27</sup>Ibid., p. 319.

<sup>28</sup>Michael Gordon and General Bernard E. Trainor, The General's War (Boston, 1995), p. 331.

<sup>29</sup>Ibid., p. 331.

BG Arnold and the corps commanders, looking to replace BAI through the normal targeting process, were increasingly concerned and skeptical. Of 1,185 targets submitted to the Joint Targeting Coordination Board by Army planners, by the end of January, only 202, or 17% had made the Air Tasking Order (ATO), and only 137, 12%, had been attacked.<sup>30</sup> The Joint Targeting and Coordination Board (JTCB) had the responsibility of taking nominations from all components and producing a joint targeting list as the basis for the daily ATO. Army complaints resulted in LTG Waller assuming duties as chairman of the JTCB, but the JFACC, General Horner, still had overriding authority. The situation got no better as G-Day grew closer. The promised "cross-over day" on which Army priorities would govern interdiction targets never occurred. In the VII Corps, a daily average of 100 targets were submitted through ARCENT to the JTCB, and only about five would be attacked, and those not in the Corps' priority.<sup>31</sup> The presence and priority of ground nominated targets on the ATO had become a litmus test of the Air Force's commitment to shaping the battlefield for the Army, and the test was failing. LTG Yeosock, 3d Army Commander, and LTG Waller, Deputy CENTCOM Commander complained loudly, but their complaints were overtaken by events as momentum swelled toward G-Day.

The Navy was also dissatisfied with the targeting process. Vice Admiral Stanley Arthur, senior Navy officer in the Gulf,

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<sup>30</sup>Ibid., p. 320.

<sup>31</sup>Personal notes from daily VII Corps command briefings.

complained that Navy nominated targets, based on pilot observations, were being ignored.<sup>32</sup> The Marines began to withdraw Marine sorties from availability to the JFACC, and to use them to strike their own deep targets.<sup>33</sup> It was apparent to the surface components that the joint targeting system was not working in a joint fashion to meet the needs of the ground forces as they perceived them.

### Doctrinal Casualty Number Three: Fire Support Coordination Measures

From the beginning, Desert Storm was a war of lines in the sand. Even the most experienced operations staff officers were becoming lost in the tangle of lines crisscrossing the featureless maps covering the zones of operations. Some of these lines were crucial to coordinating fires and avoiding fratricide. Others were non-doctrinal add-ons, which may have exacerbated problems because of the confusion they created. High level planners, for example, had added the non-doctrinal, European, Reconnaissance and Interdiction Planning Line (RIPL) to distinguish between strategic and operational interdiction for targeting. Army planners added the Battlefield Coordination Line (BCL), another non-doctrinal measure, which was supposed to clarify whose attack aviation went where. Air Force planners wanted an Artillery Deconfliction Line (ADL) so airmen would know where not to fly when friendly artillery was firing. Throwing all these non-doctrinal measures on the map

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<sup>32</sup>Gordon and Trainor, p. 320.

<sup>33</sup>Ibid.

was confusing enough, but more problematic was the non-doctrinal use of familiar measures that were well established by doctrine and should have been the source of no confusion or dispute. Among these, the Fire Support Coordination Line (FSCL) became the center of controversy.

The agreed upon, joint definition of the FSCL called it a "permissive" measure, established by the appropriate surface commander to facilitate the attack of targets beyond the line by any means and "without...additional coordination with the establishing headquarters."<sup>34</sup> Due to the predominately aerial nature of the first 41 days of the 45 day Desert Storm, the FSCL in reality became an Air Force measure and restrictive to the Army. Despite the Corps' commanders (who normally own the FSCL in their sector) recommendations to establish the FSCL in accordance with doctrine at about the range of their artillery from the FLOT (30 kilometers), the Air Force convinced CENTCOM and ARCENT to place the FSCL along the Saudi Arabian border until G-Day. This meant that during the entire battlefield preparation phase the Corps commanders had to clear it with the Air Force before they could use their own artillery to fire at the enemy immediately in front of them.<sup>35</sup> From the ground perspective, the FSCL had been turned on its head. Combined with the failed litmus test of targeting, and

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<sup>34</sup>Joint Pub 1-02, p. 146. See also Joint Pub 3-0, p. III-34, and the Air Ground Operations School, Battle Staff Course Syllabus, p. 3G-5.

<sup>35</sup>Paul E. Christopher, "VII Corps Main Command Posts in Operations Desert Shield and Desert Storm," DTIC Paper No. AD-A251291 (Carlisle, 1992), p. 34.

the loss of BAI, trust and true jointness were dissolving in the sands of the desert.

### **Desert Storm: The Triumph of Operational Fires?**

All these departures from doctrine formed the basis of dispute about the astonishing success of ground operations, which began on 25 February 1991, and ended on the morning of the 28th. The doctrinal differences had served to heighten the separation of the "Air War" and the "Ground War", and invited unhealthy speculation about which war had won the war. The Air Force and General Horner rightly claimed a major, if not decisive role:

What happened during the 100 hour ground war serves as testimony of the impact air power can have on the modern battlefield.<sup>36</sup>

The Army's assessment was that 41 days of air operations had indeed battered and fixed the Iraqi Army, but its central corps of heavy units, especially those of the Republican Guard, had not been defeated, much less destroyed, and they remained entrenched in Kuwait. It still took decisive maneuver and close combat to defeat the Iraqi ground forces and eject them from Kuwait.

Perhaps never in history has a war been so one-sided in every dimension. Neither the Air Force nor the Army, neither the Marines nor the Navy faced a threat that could be called a true test. There seems to be an implicit understanding that we should be careful about drawing any lessons from Desert Storm without due consideration of the full nature of the war as a whole -- the moral advantage to the coalition of a noble cause, the superiority of

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<sup>36</sup>Horner, p. 25.

friendly forces in training and technology at all levels and in all services, the simplicity of the terrain. This understanding should be explicit and clear: Desert Storm is not the model of how to fight jointly in the future. Joint and combined forces triumphed despite serious difference on how to shape the battlefield with operational fires. These differences persist and perhaps are exacerbated by the one-sidedness of the victory.

#### **Operational Fires: Toward a Joint Perspective**

No one service won the war, and continuing debate about it indicates that we still lack trust and true jointness among our armed services. Should we be faced with a major regional conflict in which the cause is not so clear and noble, the enemy is more agile, determined, and capable, and the environment includes tough terrain and weather as well as a tough enemy, will we be able to fight one war, at all levels, with the depth and simultaneity that only true joint operations can provide?

#### **The Current Perspective: Some Implications**

At present, the answer is no. The latest Joint Pub 3-0 presents a weak agreement on ideas of applying firepower at the operational level of war. One can see the Air Force perspective in discussions of the tactical, operational, and strategic potential of interdiction, and that interdiction from the air may be the principal means to achieve a ground objective.<sup>37</sup> At the same time, one can see the Army and Navy perspectives in the assignment of responsibility for coordination and synchronization of all

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<sup>37</sup>Joint Pub 3-0, IV-11, 12.

maneuver, fires, and interdiction to the surface component commander.<sup>38</sup> The heart of the issue is the need for unity of effort at the operational level within a theater of operations. Joint Pub 3-0 emphasizes that unity of effort is achieved through unity of command in Joint Force Commander (JFC). In reality, the pressures of time and the demands of battle make it impossible for one commander to achieve unity of effort unless the battle command system supporting him is unified in planning and execution through the true jointness of its doctrine. Current perspectives and the lingering wounds of Desert Storm make our doctrine more brittle than ever.

The more specific procedures found in Joint Pub 3-03, Doctrine for Joint Interdiction Operations, and Joint Pub 3-09, Doctrine for Joint Fire Support, have not provided the structure for joint operational fires. Joint Pub 3-03 has been a test publication for six years. Joint Pub 3-09 is in its third draft. They both retain separate, service perspectives on how to fight with fires at the operational level. Joint Pub 3-0, the "Mother of All Operations Pubs" retains a mixture of separate service perspectives that have yet to be reconciled. Consequently it neither defines or even discusses the concept of operational fires. The operational scheme discussions specify two primary elements of a concept of operation, "maneuver" and "interdiction". Maneuver is discussed from the ground perspective, while interdiction is discussed from the air perspective. Until we develop a joint perspective, the Air Force

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<sup>38</sup>Ibid., p. IV-15.



will continue to try and win every ground battle with interdiction, and the Army will continue to fight the ground battle without realizing the full potential of air aground operations. Unless we change the way we think about how to fight jointly we will fight the next war just like we fought the last one. The Air Force will fight one war, the Army another, and if it's on the littoral, the Navy may get its chance to show its perspective in action as the Army and Air Force did in 1991. If it turns out to be a tougher fight, our smaller force may be inadequate to overcome the inefficiency of our separate wars. Missions may fail, and Americans may die, as well as any allies who are fighting with us, because we cannot agree on how to fight as one.

#### **Toward A Joint Perspective: Some Recommendations**

We first must face the truth of our lack of joint perspective and commit ourselves to a new way of thinking. We must agree that there are no sacred cows when it comes to joint warfighting, and we must tackle long-held notions head on. The first step toward a joint perspective is to convene a joint panel to re-look the Joint Pub 3-series with the express mission of defining and developing the concept of operational fires. The TAC-TRADOC partnership that led the development of joint tactics, techniques, and procedures for air-ground operations has shown the way.

The Air Force perspective that we must re-look all our ideas in three dimensions is absolutely correct and is a legitimate challenge to the surface components. The Army and the Marine Corps, in particular, must be willing to consider that the

operational application of air power and sea power can be decisive. The old World War II debate on the defeat of Japan is worth re-considering. What brought Japan to her knees? Was it just the atomic bomb? How much of a factor was the strategic, conventional bombing campaign? How much of a factor was the naval blockade? Does the fact that Japan surrendered without a ground invasion suggest that operational fires can have truly decisive effects in a campaign or major operation? As conventional weapons become more and more effective, the Army and the Marine Corps must be willing to come off their bed rock principle that a decisive operational maneuver and close combat is ultimately required for victory. The Army, in particular, must be ready to commit ground forces *in support of* the Air Force or the Navy in what is pre-dominately an air or a naval campaign.

At the same time, the Air Force and the Navy must come off their tendency toward independent operations. The Navy has already come a long way in this regard with their new doctrine of "Forward From the Sea." The Air Force, however, seems reluctant to admit in doctrine that anyone but an airman can think in three dimensions. The Air Force must be willing to acknowledge that, in what is a pre-dominately land campaign, the land commander should have control over the synchronization of air and ground forces in his sector.

These changes in service perspective must be followed by a specific operational application. Clausewitz' dictum that the first order of business in war is to determine the specific nature

of the war one is fighting. Our strategists and operational planners should make an effort to determine the true nature of each campaign and even major operations within a campaign, and should task organize accordingly, giving the lead in key positions, units, and overall priority for support to the appropriate air, land, or sea component.

These general recommendations are meant to form a basis for a more joint perspective on fighting at the operational level. These alone, of course, are difficult enough, but we need more specific changes concerning the application of firepower at the operational level. Range of weapons and tempo of warfare have increased dramatically, and in a predominately ground operation, the ground commander should control all fires in his sector. "Operational Air Support" is as legitimate as "Close Air Support", and the Air Force should re-institute Battlefield Air Interdiction (BAI) immediately.

The joint targeting process must be truly joint, and cannot depend on the Joint Force Commander (JFC) to make it so. The heat of battle is no time for a commander to have to referee inter-service disputes. Upon determination of the nature of a campaign or major operation, the Commander in Chief should appoint a Joint Force Fires Coordinator (JFFC) of the service that has the lead in the operation.<sup>39</sup> This position should be institutionalized with a

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<sup>39</sup>The Field Artillery School has proposed such a position, and has proposed a system to back it up. The proposal is an excellent beginning, but the implication is that the JFFC would in most instances come from the Army. The proposal here is for a JFFC from the appropriate service. See the U.S. Army Field Artillery

supporting Deep Operations Coordination Cell (DOCC) to plan and execute operational fires. The JTCCB should be subordinate to the JFFC and part of the DOCC.

Fire support coordination measures need a complete overhaul (again!). The Fire Support Coordinating Line (FSCL) needs to be re-defined. The perception that it is a permissive measure and that it is a ground commander's property is a myth that should be de-bunked. The FSCL is on the cusp between air and ground forces and should be a joint measure established by the JFFC. We should look at new terms to ensure that we don't have to invent any during the heat of battle. Simplification should be the key, but lines that separate tactical, operational, and theater strategic fires would be appropriate. A Battlefield Coordination Line (BCL - tactical), Fire Support Coordination Line (FSCL - operational), and Reconnaissance and Interdiction Planning Line (RIPL - theater strategic) are examples.

Much of this discussion has focused on Army-Air Force perspectives and disputes. In the future, the smaller, power-projection forces of the United States will require a more central role for naval forces. Short duration major operations may be primarily naval in character. The naval perspective must become a key part of a new joint dialogue.

#### **Conclusion: Shaping the Battlespace**

While the tendency of modern combat is toward depth and

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School's White Paper, "Joint Fire Support and Interdiction: Conduct of Operations Between the Fire Support Coordination Line and the Forward Boundary" (Fort Sill, OK, 15 August 1994).

simultaneous operations, there remains a need for a joint force commander to visualize a series or sequence of engagements and battles to accomplish the objectives of a campaign or major operation. In most instances this vision will include a conception of the enemy's operational center of gravity and one or more decisive points that can be attacked with operational fires with decisive effects. The separate services of the United States have had differing perspectives of how to use all types of fires to accomplish operational ends. The Air Force sees one battlespace, in which aerospace power can be decisive if allowed to operate unhindered in simultaneous operations at all levels. It sees lines and levels as tools of organization, primarily to prevent fratricide. The Army sees tactical, operational, and theater strategic battlespace, and that the primary dimension is on the land. All efforts should be toward shaping each battlespace for success at the lowest level. The Navy sees a large battlespace in which operational fires can overlap dimensions and cross areas of operations, shape the battlespace, and bring decision at the tactical level.

Operation Desert Storm could leave us with a false security about our capability for joint operations in general and the joint application of firepower in particular. The joint doctrine that we have today is more brittle than it ever was. It is time to pause, reassess our true jointness, and re-establish the trust between our services. It is certain that potential enemies of the United States have gone to school on Desert Storm -- have we?

## BIBLIOGRAPHY

### JOINT PUBLICATIONS (Office of the Chairman, Joint Chiefs of Staff)

Joint Publication 1-02, Department of Defense Dictionary of Military and Associated Terms. Washington, DC: U.S. Government Printing Office, 3 March 1994.

Joint Publication 3-0, Doctrine for Joint Operations. Washington, DC: U.S. Government Printing Office, 1 February, 1995.

Joint Publication 3-03T, Doctrine for Joint Interdiction Operations. (Final Draft). Washington, DC: U.S. Government Printing Office, 1994.

Joint Publication 3-09, Doctrine for Joint Fire Support. (3d Draft). Washington, DC: U.S. Government Printing Office, 11 December 1995.

Office of the Chairman, Joint Chiefs of Staff. National Military Strategy of the United States of America. Washington, DC: U.S. Government Printing Office, 1995.

### SERVICE PUBLICATIONS

Department of the Air Force. Air Force Manual 1-1, Basic Aerospace Doctrine of the United States. Volumes I and II. Washington, DC: March 1992.

Department of the Army. FM 100-5, Operations. Washington, DC: April 1993.

Department of the Army. FM 100-7, Decisive Force: The Army in Theater Operations. Washington, DC: 31 May 1995.

Department of the Army. Certain Victory: The United States Army in the Gulf War. Scales, Robert H., Jr. Desert Storm Study Project. Washington, DC: 1993.

Department of the Army, Office of the Secretary of the Army. "A Statement on the Posture of the United States Army, Fiscal Year 1996." Washington, DC: February 1995.

Department of the Army, Roles and Missions Directorate (DAMO-ZM). "Roles and Missions." Washington, DC: 31 October 1994.

Department of the Army, Training and Doctrine Command. TRADOC Pam 525-5, AirLand Operations. Fort Monroe, VA: 1 August 1991.

Department of the Army, U.S. Army Field Artillery School. "Joint Fire Support and Interdiction: Conduct of Operations ~~Between~~ the Fire Support Coordination Line and the Forward Boundary." (A White Paper). Fort Sill, OK: 15 August 1994.

Department of the Navy. Naval Doctrine Publication 1, Naval Warfare. Washington, DC: 28 March 1994.

Department of the Navy. Naval Doctrine Publication 6, Naval Command and Control. Washington, DC: 19 May 1995.

Department of the Navy, HQ, U.S. Marine Corps. FMFM 1, Warfighting. Washington, DC: 6 March 1989.

### Secondary Sources

Berenson, Dr. Paul J. "Fratricide Point Paper." (Unpublished TRADOC Paper) Fort Monroe, VA: April 1995.

Bingham, Price T., LTC (Ret). "The Air Force's New Doctrine." Military Review. Fort Leavenworth, November 1992.

Boice, William M., Major General. "Fires and Maneuver -- One and the Same." Field Artillery. Fort Sill, OK: August 1992.

Christopher, Paul E., LTC. "VII Corps Main Command Posts During Operations Desert Shield and Desert Storm." Carlisle, PA: 1992. (DTIC Paper ADA295952).

Dunningan, James F. and Austin Bay. From Shield to Storm: High-Tech Weapons, Military Strategy, and Coalition Warfare in the Persian Gulf. New York: William Morrow & Company, 1991.

Garret, Grady B., MAJ. "The Corps Artillery Commander and Deep Operations." Field Artillery. Fort Sill, OK: April 1993.

Gloriod, John A., COL and Scott E. Nahrwold. "Targeting -- Keeping It Simple." Field Artillery. Fort Sill, OK: February 1992.

Gordon, Michael R. and General (Ret) Bernard E. Trainor. The Generals' War. Boston: Little, Brown, & Company, 1995.

Haynes, Forrest D., MAJ. "Synchronizing the Divisional Deep Fight." Field Artillery. Fort Sill, OK: April 1993.

Hood, Jay. "Operational Fires and the Joint Force Commander." Unpublished Research Paper. Newport, RI: U.S. Naval War College, 1995. (NWC 4047)

Horner, Charles A., General. "The Air Campaign." Military Review. Fort Leavenworth: September 1991.

Kindsvatter, Peter S., LTC. "VII Corps in the Gulf War: Deployment and Preparation for Desert Storm." Military Review. Volume LXII, No. 1. Fort Leavenworth: January 1992.

Kindsvatter, Peter S., LTC. "VII Corps in the Gulf War: The Ground Offensive." Military Review. Volume LXII, No. 2, February 1992.

MacGregor, Douglas A. "Future Battle: The Merging Levels of War." Parameters. Volume XXII, No. 4. Carlisle, PA: Winter 1992-93.

McKiernan, David D., LTC. "Command, Control, and Communications at the VII Corps Tactical Command Post: Operations Desert Shield/Desert Storm." Carlisle, PA: 1992. (DTIC Paper ADA251291).

Munro, Neil. "Speed Weaponry May Force Shift in Battle Roles." Defense News. 15 April, 1991.

O'Bryon, James. "Gulf Victory Provides No War Blueprint." Defense News. 18 March 1991.

Record, Jeffrey. "Why the Air War Worked." Armed Forces Journal International. April 1991.

Schwarzkopf, H. Norman, General (Ret) and Peter Petre. It Doesn't Take a Hero. New York: Bantam Books, 1992.

U.S. Naval War College, Joint Military Operations Department. "Operational Functions -- Appendix F: Operational Fires." Newport, RI: January 1996.

Winton, Harold R. "Partnership and Tension: The Army and Air Force Between Vietnam and Desert Shield," Parameters, Volume XXVI, No. 1, Spring 1996.

Winton, Harold R. "Reflections on the Air Force's New Manual." Military Review. Fort Leavenworth: November 1992.

Yeosock, John J. LTG. "Army Operations in the Gulf Theater." Military Review. Volume LXXI, No. 9, September 1991.